



1/24

SEQUENCE LISTING

<110>

Ulrich, Ricky
Jeddeloh, Jeffrey A.
Oyston, Petra

<120> Glanders/Melioidosis Vaccines

<130> 003/267/SAP

<140> 10/620,242

<141> 2003-07-15

<150> US 60/386,257

<151> 2002-07-15

<160> 44

<170> Apple Macintosh Microsoft Word 6.0

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<212> DNA

<213> *B. mallei* ATCC 23344 AHS gene *bmaI1*

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atgtgttcgc	ccgcgacgac	gacggggaaa	tctgcggctg	200
cgcggcgctg	ctgcccacga	cccggccgt	tctgctgaag	240
gaactgttcc	cgacgcttgt	cgcgcaagac	atgcgttgc	280
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gaacccccgg	gatccggccg	ggggcgccaa	cccgccctgg	360
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gagcatggag	cgcctgttcc	gccggatcgg	cgtgcacgc	480
caccggccgg	ggcccgccca	gcagatcgac	ggcgccatgg	520
tcgtcgctgt	ctggatcgac	ctcgacgc	aaacgctcg	560
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<213> *B. mallei* ATCC 23344 AHS gene *bmaI3*

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ctcgacgaac	atgcggagt	ggacgagttc	gacggggccgt	160
cgacgattca	tgtcgctcg	ctcgacgacg	cgcgcgagat	200
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ctgctgcgcg	acgtgttgc	gcatctgctc	ggctcgctcg	280
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ccgcgtcgct	cggcgcgacg	cgcgtggtcg	gcgtgatgac	440
gccatcgatc	gaacgcctgt	accgcgcgtc	gggcgcgcg	480
ctgcatcgcc	tcggcaacgc	gatgccgggc	gccccggca	520
gcctgtccgc	atgctcgatc	gatctgcgc	gcctcgccgtt	560
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<213> *B. mallei* ATCC 23344 transcriptional regulator gene
bmaR1

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atacgcgtgc	cgttgcgcgt	ctcgaagccg	gtcgtcgca	160
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ggaaatgaac	tacctggagg	tcgatccgac	cgtacgcgag	240
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agcatctccg	agcgcacggt	gaactttcac	gtcaacaaca	640
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ctcgacgaac	atgcggagt	ggacgagttc	gacggggccgt	160
cgacgattca	tgtcgctcg	ctcgacgacg	cgcgcgagat	200
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cggccgtcg	cggcggcgcc	gaagcgac	cgaccgcgag	360
ccgctcgca	tggcgttctt	tccgtcggtg	ctcacggtgg	400
ccgcgtcgct	cggcgcgacg	cgcgtggtcg	gcgtgatgac	440
gccatcgatc	gaacgcgtgt	accgcgcgtc	gggcattcgcg	480
ctgcattcgcc	tcggcaacgc	gatgccggc	gcggggcggca	520
gcctgtccgc	atgctcgatc	gatctgcgcg	gcctcgcggt	560
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aacgctacgt	tcggcgacga	gaccgggggc	gccgcgtgcg	120
cggacggctct	tgcgggcatg	tcctgttcga	tcgtcgcccg	160
acgcttgcgt	cgtgcgtgtc	gagtccgcgg	acaatcaccc	200
gcagcggtct	tcagcgtct	tccggcgcgc	gacgcctggc	240
ccgccatgcg	tacgagggcg	catggcgacag	catgttcgcg	280
gcctgccggg	gcggcgctga	gcgtgcgcgg	cgccagccgt	320
gatgcagggt	tggccggcgc	gcgcgggatt	cgagcgatgc	360
tcgagcgccg	agcgcgggtt	cggcttcggc	gcaggcgcc	400
gattgtcccc	ccgcgttcga	cgaaacgaac	ggcgtgcgcgt	440
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gcgcgcgggc	cgcgttgcc	ctctcgcccc	tttcgagcac	520
gctttttca	ttggttcgct	aacgttaactt	cctcaacttga	560
gctggcgggt	tctatgttcg	aaggcttgc	cattggttcg	600
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<211> 726

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<213> *B. mallei* ATCC 23344 transcriptional regulator gene
bmaR5

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tgcgcatacg	ggctgcgt	gccgtggccg	ctgtccaggc	160
cgcgcacatcg	gacgcgcagc	aactttcccg	agcaatggaa	200
gcggcgctac	gtcgaggcgg	gtttcctcga	tgtcgatccg	240
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tcgtccgcgtc	gcgcgagccg	gtgacggcgg	cgaaactcga	440
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cggacccgga	gcgcgggctg	accgagcg	aggtcgagg	560
gctcaagtgg	gcggcggacg	gcaagacgtc	cgccgagatc	600
tcgaagatcc	tcgcgatatac	cgtcgatacg	gtgaatttcc	640
acgtgaagaa	cgcgcattctg	aagctcagga	cggcgaacaa	680
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<210> 7

<211> 612

<212> DNA

<213> *B. pseudomallei* DD503 AHS gene *bpmI1*

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gcgggtcgcc	cgatgctcgc	cgccgtcg	gagtgcgc	400
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gagcatggag	cgcctgttcc	gccggatcg	cgtgcacgc	480
caccggcgg	ggcccgcgc	gcagatcgac	ggcgcatgg	520
tcgtcgctg	ctggatcgac	ctcgacgc	aaacgctcg	560
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<210> 8

<211> 621

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<213> *B. pseudomallei* DD503 AHS gene *bpmI2*

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gggctcgaga	tcgatcagtt	cgatcgccc	gatacgatt	160
acgtggtcgg	aaaaacagag	tccggcgata	tctgcggatg	200
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gaggtgttcc	ccgatctgt	gggcgacgc	gcgcgc	280
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gctcgcgtc	gagcggctgc	tcaaccgtct	gaaagtccat	480
attcaccgcg	cgggtcgcc	tcgggtgatc	gacggcaagc	520
cgggtgtcgc	gtgctgatc	gaggtggacg	acatcacgt	560
ccaagcgctc	gacatcgac	cggccgcga	tccggccgc	600
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<211> 609

<212> DNA

<213> *B. pseudomallei* DD503 AHS gene *bpmI3*

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cgccgcgtcg	cggcggccgc	gaagcgcgac	cgagcgcgag	360
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gcctgtccgc	atgctcgatc	gatctgcgc	gcctcgcg	560
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<211> 720

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<213> *B. pseudomallei* DD503 transcription regulator gene
bpmR1

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<213> *B. pseudomallei* DD503 transcription regulator gene
bpmR2

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			175						180
Asp	Ala	Gln	Thr	Leu	Ala	Ala	Leu	Asp	Leu
			185						190
Asp	Leu	Pro	Leu	Leu	Cys	Ala	Pro	Pro	Ala
			195						200
Glu Ala Ala									

<210> 16
<211> 202
<212> PRT
<213> *B. mallei* ATCC 23344 bmaI3
<400> 16

Met	Ser	Tyr	Ile	Ile	Ala	Gly	Arg	Leu	Asn
1				5				10	
Glu	Lys	Pro	Pro	His	Val	Gln	Thr	Asp	Leu
				15					20
Gly	Ala	Tyr	Arg	Tyr	Asp	Val	Phe	Val	Arg
			25						30
Arg	Leu	Gly	Trp	Thr	Ile	Ala	Gly	His	Ser
			35						40
Leu	Asp	Glu	His	Ala	Glu	Trp	Asp	Glu	Phe
			45						50
Asp	Gly	Pro	Ser	Thr	Ile	His	Val	Val	Ala
			55						60

Leu Asp Asp Ala Arg Glu Ile Cys Gly Tyr
 65 70
 Ala Arg Leu Leu Pro Thr Thr Gly Pro Tyr
 75 80
 Leu Leu Arg Asp Val Phe Ala His Leu Leu
 85 90
 Gly Ser Ser Pro Ala Pro Gln Ser Pro Ala
 95 100
 Val Trp Glu Met Ser Arg Phe Ala Ala Ser
 105 110
 Arg Arg Arg Arg Ser Ala Thr Glu Arg Glu
 115 120
 Pro Leu Gly Met Ala Phe Phe Pro Ser Val
 125 130
 Leu Thr Val Ala Ala Ser Leu Gly Ala Thr
 135 140
 Arg Val Val Gly Val Met Thr Pro Ser Ile
 145 150
 Glu Arg Leu Tyr Arg Arg Ser Gly Ile Ala
 155 160
 Leu His Arg Leu Gly Asn Ala Met Pro Gly
 165 170
 Ala Gly Gly Ser Leu Ser Ala Cys Ser Ile
 175 180
 Asp Leu Pro Arg Leu Ala Phe Ala Pro Leu
 185 190
 Gly Leu Lys Gln Cys Ala Ala Cys Leu Ala
 195 200
 Met His

<210> 17
 <211> 239
 <212> PRT
 <213> *B. mallei* ATCC 23344 bmaR1
 <400> 17

Met Glu Leu Arg Trp Gln Asp Ala Tyr Leu
 1 5 10
 Gln Phe Ser Ala Ala Glu Asn Glu Gln Gln
 15 20
 Leu Phe Gln Gln Ile Ala Ala Tyr Thr Lys
 25 30
 Arg Leu Gly Phe Glu Tyr Cys Cys Tyr Gly
 35 40
 Ile Arg Val Pro Leu Pro Ile Ser Lys Pro
 45 50
 Val Val Ala Ile Phe Asp Thr Tyr Pro Asn
 55 60
 Gly Trp Met Glu Arg Tyr Gln Glu Met Asn
 65 70
 Tyr Leu Glu Val Asp Pro Thr Val Arg Glu
 75 80
 Gly Ala Leu Ser Ser Asn Met Ile Val Trp
 85 90

Pro	Glu	Ala	Ser	Ala	Ser	Asp	Ala	Thr	Thr
				95					100
Leu	Trp	Ser	Asp	Ala	Arg	Asp	His	Gly	Leu
				105					110
Ala	Val	Gly	Val	Ala	Gln	Ser	Ser	Trp	Ala
				115					120
Ser	Arg	Gly	Val	Phe	Gly	Leu	Leu	Thr	Ile
				125					130
Ala	Arg	His	Thr	Asp	Arg	Leu	Thr	Ser	Ala
				135					140
Glu	Ile	Asn	His	Leu	Thr	Leu	Gln	Ala	Asn
				145					150
Trp	Leu	Ala	Asn	Met	Ser	His	Ser	Leu	Met
				155					160
Ser	Arg	Phe	Leu	Val	Pro	Lys	Leu	Ala	Pro
				165					170
Glu	Ser	Gly	Val	Ala	Leu	Thr	His	Arg	Glu
				175					180
Arg	Glu	Val	Leu	Cys	Trp	Thr	Gly	Glu	Gly
				185					190
Lys	Thr	Ala	Cys	Glu	Ile	Gly	Gln	Ile	Leu
				195					200
Ser	Ile	Ser	Glu	Arg	Thr	Val	Asn	Phe	His
				205					210
Val	Asn	Asn	Ile	Leu	Asp	Lys	Leu	Gly	Ala
				215					220
Thr	Asn	Lys	Val	Gln	Ala	Val	Val	Lys	Ala
				225					230
Ile	Ala	Met	Gly	Leu	Ile	Asp	Ala	Pro	
				235					

<210> 18
 <211> 202
 <212> PRT
 <213> *B. mallei* ATCC 23344 bmaR3
 <400> 18

Met	Ser	Tyr	Ile	Ile	Ala	Gly	Arg	Leu	Asn
1				5					10
Glu	Leu	Pro	Pro	His	Val	Gln	Thr	Asp	Leu
				15					20
Gly	Ala	Tyr	Arg	Tyr	Asp	Val	Phe	Val	Arg
				25					30
Arg	Leu	Gly	Trp	Thr	Ile	Ala	Gly	His	Ser
				35					40
Leu	Asp	Glu	His	Ala	Glu	Trp	Asp	Glu	Phe
				45					50
Asp	Gly	Pro	Ser	Thr	Ile	His	Val	Val	Ala
				55					60
Leu	Asp	Asp	Ala	Arg	Glu	Ile	Cys	Gly	Tyr
				65					70
Ala	Arg	Leu	Leu	Pro	Thr	Thr	Gly	Pro	Tyr
				75					80
Leu	Leu	Arg	Asp	Val	Phe	Ala	His	Leu	Leu
				85					90

Gly	Ser	Ser	Pro	Ala	Pro	Gln	Ser	Pro	Ala
				95					100
Val	Trp	Glu	Met	Ser	Arg	Phe	Ala	Ala	Ser
				105					110
Arg	Arg	Arg	Arg	Ser	Ala	Thr	Glu	Arg	Glu
				115					120
Pro	Leu	Gly	Met	Ala	Phe	Phe	Pro	Ser	Val
				125					130
Leu	Thr	Val	Ala	Ala	Ser	Leu	Gly	Ala	Thr
				135					140
Arg	Val	Val	Gly	Val	Met	Thr	Pro	Ser	Ile
				145					150
Glu	Arg	Leu	Tyr	Arg	Arg	Ser	Gly	Ile	Ala
				155					160
Leu	His	Arg	Leu	Gly	Asn	Ala	Met	Pro	Gly
				165					170
Ala	Gly	Gly	Ser	Leu	Ser	Ala	Cys	Ser	Ile
				175					180
Asp	Leu	Pro	Arg	Leu	Ala	Phe	Ala	Pro	Leu
				185					190
Gly	Leu	Lys	Gln	Cys	Ala	Ala	Cys	Leu	Ala
				195					200
Met His									

<210> 19
 <211> 220
 <212> PRT
 <213> *B. mallei* ATCC 23344 bmaR4
 <400> 19

Met	Pro	Leu	Pro	Ile	Arg	Cys	Gly	Glu	Gly
1				5				10	
Pro	Ser	Pro	Gln	Gln	Arg	Gly	Ala	Pro	Arg
				15					20
Ala	Ala	Arg	Arg	Pro	Ser	Arg	Thr	Leu	Arg
				25					30
Ser	Ala	Thr	Arg	Pro	Gly	Ala	Pro	Arg	Ala
				35					40
Arg	Thr	Val	Leu	Arg	Ala	Cys	Pro	Val	Arg
				45					50
Ser	Ser	Ala	Asp	Ala	Cys	Val	Val	Arg	Val
				55					60
Glu	Ser	Ala	Asp	Asn	His	Pro	Gln	Arg	Ser
				65					70
Ser	Ala	Val	Phe	Arg	Arg	Ala	Thr	Pro	Gly
				75					80
Pro	Pro	Cys	Val	Arg	Gly	Arg	Met	Ala	Gln
				85					90
His	Val	Arg	Gly	Leu	Pro	Gly	Arg	Arg	Arg
				95					100
Ala	Cys	Ala	Ala	Ala	Ala	Val	Met	Gln	Val
				105					110
Trp	Pro	Ala	Arg	Ala	Gly	Phe	Glu	Arg	Cys
				115					120

Ser	Ser	Ala	Glu	Arg	Arg	Phe	Gly	Phe	Gly
				125					130
Ala	Gly	Gly	Arg	Leu	Ser	Arg	Arg	Val	Arg
				135					140
Arg	Asn	Glu	Arg	Arg	Ala	Val	Leu	Arg	Arg
				145					150
Arg	Gly	Arg	Gln	Ala	Arg	Arg	Arg	Phe	Ala
				155					160
Ala	Arg	Gly	Pro	Pro	Leu	Pro	Ser	Arg	Pro
				165					170
Phe	Arg	Ala	Arg	Phe	Leu	His	Trp	Phe	Ala
				175					180
Asn	Val	Thr	Ser	Ser	Leu	Glu	Leu	Gly	Gly
				185					190
Ser	Met	Phe	Glu	Gly	Leu	Ser	Ile	Gly	Ser
				195					200
Phe	Asn	Glu	Ile	Leu	Asn	Ala	Thr	Cys	Lys
				205					210
Lys	Ser	Leu	Phe	Glu	Gln	Thr	Ala	Tyr	His
				215					220

<210> 20
 <211> 241
 <212> PRT
 <213> *B. mallei* ATCC 23344 bmaR5
 <400> 20

Met	Arg	Ala	Ala	Met	Gly	Asn	Trp	Ala	Glu
				1		5			10
Asp	Leu	Leu	Ala	Gly	Leu	Asp	Ser	Ala	Arg
				15					20
Ser	Glu	Glu	Glu	Arg	Phe	Arg	Ser	Val	Glu
				25					30
Thr	Ala	Ala	Ala	Ala	Leu	Asp	Phe	Glu	Tyr
				35					40
Cys	Ala	Tyr	Gly	Leu	Arg	Val	Pro	Trp	Pro
				45					50
Leu	Ser	Arg	Pro	Arg	Ile	Glu	Thr	Arg	Ser
				55					60
Asn	Phe	Pro	Glu	Gln	Trp	Lys	Arg	Arg	Tyr
				65					70
Val	Glu	Ala	Gly	Phe	Leu	Asp	Val	Asp	Pro
				75					80
Ile	Leu	Ala	His	Gly	Arg	Arg	Ser	Gln	Gln
				85					90
Pro	Val	Val	Leu	Ala	Glu	Thr	Leu	Phe	Ala
				95					100
Ser	Ala	His	Gln	Met	Trp	Val	Glu	Ala	Gln
				105					110
Ser	Phe	Gly	Leu	Arg	Phe	Gly	Trp	Ala	Gln
				115					120
Ser	Ser	Phe	Asp	Ala	Tyr	Gly	Gly	Met	Gly
				125					130
Met	Leu	Ala	Leu	Val	Arg	Ser	Arg	Glu	Pro

	135	140	
Val Thr Ala Ala	Glu	Leu Asp Ala Lys	Glu
	145	150	
Tyr Arg Met Arg	Trp	Leu Val Arg Thr	Ala
	155	160	
His Ala Ala Leu	Gly	Arg Met Met Leu	Pro
	165	170	
Lys Leu Met Ala	Asp	Pro Glu Arg Glu	Leu
	175	180	
Thr Glu Arg Glu	Val	Glu Val Leu Lys	Trp
	185	190	
Ala Ala Asp Gly	Lys	Thr Ser Gly Glu	Ile
	195	200	
Ser Lys Ile Leu	Ala	Ile Ser Val Asp	Thr
	205	210	
Val Asn Phe His	Val	Lys Asn Ala Ile	Leu
	215	220	
Lys Leu Arg Thr	Ala	Asn Lys Thr Ala	Ala
	225	230	
Val Val Arg Ala	Ala	Met Leu Gly Leu	Leu
	235	240	
Ser			

<210> 21
 <211> 203
 <212> PRT
 <213> *B. pseudomallei* DD503 bpmI1
 <400> 21

Met Arg Thr Phe Val His	Gly Asp Gly Arg	
1	5	10
Leu Pro Ser Asp Leu Ala	Ala Asp Leu Gly	
	15	20
Leu Tyr Arg His Gly Val	Phe Val Glu Gln	
	25	30
Leu Gly Trp Lys Leu Pro	Ser Ala Ser Glu	
	35	40
Gly Phe Glu Arg Asp Gln	Tyr Asp Arg Asp	
	45	50
Asp Thr Val Tyr Val Phe	Ala Arg Asp Asp	
	55	60
Asp Gly Glu Ile Cys Gly	Cys Ala Arg Leu	
	65	70
Lue Pro Thr Thr Arg Pro	Tyr Leu Leu Lys	
	75	80
Glu Leu Glu Pro Thr Leu	Val Ala Gln Asp	
	85	90
Met Pro Leu Pro Gln Ser	Ala Ala Val Trp	
	95	100
Glu Leu Ser Arg Phe Ala	Ala Asn Ala Glu	
	105	110
Asp Pro Ala Gly Gly	Asn Pro Ala Trp	
	115	120
Ala Val Arg Pro Met Leu	Ala Val Val	

	125	130								
Glu	Cys	Ala	Ala	Arg	Leu	Gly	Ala	Lys	Gln	
				135						140
Leu	Ile	Gly	Val	Thr	Phe	Leu	Ser	Met	Glu	
				145						150
Arg	Leu	Phe	Arg	Arg	Ile	Gly	Val	His	Ala	
				155						160
His	Arg	Ala	Gly	Pro	Ala	Gln	Gln	Ile	Asp	
				165						170
Gly	Arg	Met	Val	Val	Ala	Cys	Trp	Ile	Asp	
				175						180
Leu	Asp	Ala	Gln	Thr	Leu	Ala	Ala	Leu	Asp	
				185						190
Leu	Asp	Pro	Leu	Leu	Cys	Ala	Pro	Pro	Ala	
				195						200
Glu	Ala	Ala								

<210> 22
 <211> 206
 <212> PRT
 <213> *B. pseudomallei* DD503 bpmI2
 <400> 22

Met	Ile	Asp	Thr	Thr	Val	Ile	Ser	Ala	Ala	
1				5						10
Gln	Leu	Asp	Ser	Thr	Val	Lys	Ala	Ala	Leu	
				15						20
Gly	Asn	Tyr	Arg	Arg	Ala	Ile	Phe	Ile	Glu	
				25						30
Lys	Leu	Gly	Trp	Pro	Leu	Pro	Leu	Val	Asp	
				35						40
Gly	Leu	Glu	Ile	Asp	Gln	Phe	Asp	Arg	Pro	
				45						50
Asp	Thr	Ile	Tyr	Val	Val	Gly	Lys	Thr	Glu	
				55						60
Ser	Gly	Asp	Ile	Cys	Gly	Cys	Ala	Arg	Leu	
				65						70
Leu	Pro	Thr	Thr	Arg	Pro	Tyr	Leu	Leu	Gly	
				75						80
Glu	Val	Phe	Pro	Asp	Leu	Met	Gly	Asp	Ala	
				85						90
Ala	Pro	Pro	Cys	Ser	Ala	His	Val	Trp	Glu	
				95						100
Ile	Ser	Arg	Phe	Ser	Ser	Ser	Ile	Leu	Ser	
				105						110
Gly	Gly	Pro	Asp	Ala	Leu	Arg	Gln	Ala	His	
				115						120
Arg	Asn	Thr	Arg	Ile	Leu	Leu	Ala	Lys	Ile	
				125						130
Val	Arg	Phe	Ala	Gln	Ala	Ala	Gly	Val	Lys	
				135						140
Arg	Leu	Ile	Thr	Val	Ser	Pro	Leu	Ala	Val	
				145						150
Glu	Arg	Leu	Leu	Asn	Arg	Leu	Lys	Val	His	

	155	160
Ile His Arg Ala	Gly Pro Pro Arg Leu	Ile
	165	170
Asp Gly Lys Pro	Val Phe Ala Cys Gln	Ile
	175	180
Glu Val Asp Asp	Ile Thr Leu Gln Ala	Leu
	185	190
Asp Ile Glu Pro	Ala Ala Asp Ser Ala	Ala
	195	200
Gly Ala Leu Arg	His Ser	
	205	
<210>	23	
<211>	202	
<212>	PRT	
<213>	<i>B. pseudomallei</i> DD503 bpmI3	
<400>	23	

Met Ser Tyr Ile Ile Ala Gly Arg Leu Asn		
1	5	10
Glu Leu Pro Pro His Val Gln Thr Asp Leu		
	15	20
Gly Ala Tyr Arg Tyr Asp Val Phe Val Arg		
	25	30
Arg Leu Gly Trp Thr Ile Ala Gly His Ser		
	35	40
Leu Asp Glu His Ala Glu Trp Asp Glu Phe		
	45	50
Asp Gly Pro Ser Thr Ile His Val Val Ala		
	55	60
Leu Asp Asp Ala Arg Glu Ile Cys Gly Tyr		
	65	70
Ala Arg Leu Leu Pro Thr Thr Gly Pro Tyr		
	75	80
Leu Leu Arg Asp Val Phe Ala His Leu Leu		
	85	90
Gly Ser Ser Pro Ala Pro Gln Ser Pro Ala		
	95	100
Val Trp Glu Met Ser Arg Phe Ala Ala Ser		
	105	110
Arg Arg Arg Arg Ser Ala Thr Glu Arg Glu		
	115	120
Pro Leu Gly Met Ala Phe Phe Pro Ser Val		
	125	130
Leu Thr Val Ala Ala Ser Leu Gly Ala Thr		
	135	140
Arg Val Val Gly Val Met Thr Pro Ser Ile		
	145	150
Glu Arg Leu Tyr Arg Arg Ser Gly Ile Ala		
	155	160
Leu His Arg Leu Gly Asn Ala Met Pro Gly		
	165	170
Ala Gly Gly Ser Leu Ser Ala Cys Ser Ile		
	175	180
Asp Leu Pro Arg Leu Ala Phe Ala Pro Leu		

	185	190
Gly Arg Lys Gln Cys Ala Ala Cys Leu Ala		
	195	200

Met His

<210> 24
<211> 239
<212> PRT
<213> *B. pseudomallei* DD503 bpmR1
<400> 24

Met Glu Leu Arg Trp Gln Asp Ala Tyr Leu	
1 5 10	
Gln Phe Ser Ala Ala Glu Asn Glu Gln Gln	
15 20	
Leu Phe Gln Gln Ile Ala Ala Tyr Thr Lys	
25 30	
Arg Leu Gly Phe Glu Tyr Cys Cys Tyr Gly	
35 40	
Ile Arg Val Pro Leu Pro Ile Ser Lys Pro	
45 50	
Val Val Ala Ile Phe Asp Thr Tyr Pro Asn	
55 60	
Gly Trp Met Glu Arg Tyr Gln Glu Met Asn	
65 70	
Tyr Leu Glu Val Asp Pro Thr Val Arg Glu	
75 80	
Gly Ala Leu Ser Ser Asn Met Ile Val Trp	
85 90	
Pro Glu Ala Ser Ala Ser Asp Ala Thr Thr	
95 100	
Leu Trp Ser Asp Ala Arg Asp His Gly Leu	
105 110	
Ala Val Gly Val Ala Gln Ser Ser Trp Ala	
115 120	
Ser Arg Gly Val Phe Gly Leu Leu Thr Ile	
125 130	
Ala Arg His Thr Asp Arg Leu Thr Ser Ala	
135 140	
Glu Ile Asn His Leu Thr Leu Gln Ala Asn	
145 150	
Trp Leu Ala Asn Met Ser His Ser Leu Met	
155 160	
Ser Arg Phe Leu Val Pro Lys Leu Ala Pro	
165 170	
Glu Ser Gly Val Ala Leu Thr His Arg Glu	
175 180	
Arg Glu Val Leu Cys Trp Thr Gly Glu Gly	
185 190	
Lys Thr Ala Cys Glu Ile Gly Gln Ile Leu	
195 200	
Ser Ile Ser Glu Arg Thr Val Asn Phe His	
205 210	
Val Asn Asn Ile Leu Asp Lys Leu Gly Ala	

	215	220
Thr Asn Lys Val Gln Ala Val Val Lys Ala		
	225	230
Ile Ala Met Gly Leu Ile Asp Ala Pro		
	235	

<210> 25

<211> 236

<212> PRT

<213> *B. pseudomallei* DD503 bpmR2

<400> 25

Met Glu Met His Asp Phe Leu Gln Phe Trp		
1	5	10
Leu Asn Glu Phe Ser Arg Ser Glu Asn Pro		
	15	20
Gln His Val Ile Ser Val Leu Thr Arg Ala		
	25	30
Ala Ala Thr Leu Gly Tyr Glu Tyr Ala Ala		
	35	40
Tyr Gly Met Arg Arg Pro Phe Pro Ile Ser		
	45	50
Asn Pro Pro Ile Leu Met Val Ser Asn Tyr		
	55	60
Pro Ala Arg Trp Gln Glu Arg Tyr Ile Glu		
	65	70
Ala Arg Phe Ala Asn Ile Asp Gly Ala Val		
	75	80
Lys Ala Ala Leu Gly Ser Asp Arg Pro Val		
	85	90
Thr Trp Ser Ala Pro Ala Asn Ala Ser Lys		
	95	100
Ser Ala Phe Trp Ala Glu Ala Leu Ser Phe		
	105	110
Gly Ile Ala His Gly Trp Ser Ser Ala Ser		
	115	120
Arg Gly Ala Asp Gly Ala Ile Gly Val Leu		
	125	130
Thr Leu Ser Arg Thr Gln Asp Pro Ile Asp		
	135	140
Thr Ala Glu Lys Phe Arg Asn Glu Ser Ile		
	145	150
Val His Trp Leu Ala Asn Val Ala His Ala		
	155	160
Ser Met Ala Pro Phe Leu Pro Ala Ala Asp		
	165	170
Glu Phe Asp Pro Asp Leu Thr Arg Arg Glu		
	175	180
Thr Asp Val Leu Lys Trp Thr Ala Asp Gly		
	185	190
Lys Thr Ala Tyr Glu Ile Ala Leu Ile Leu		
	195	200
Ser Ile Ser Glu Ser Thr Val Asn Phe His		
	205	210
Val Lys Asn Ile Val Ser Lys Leu Gly Ser		

	215	220
Thr Asn Lys Ile Gln Ala Val Ala Lys Ala		
	225	230
Ala Leu Met Gly Met Leu		
	235	
<210> 26		
<211> 230		
<212> PRT		
<213> <i>B. pseudomallei</i> DD503 bpmR3		
<400> 26		

Met Leu Ser Ala Ala Leu Pro Glu Ser Arg		
1 5 10		
Asp Val Arg Thr Leu Val Glu Thr Phe Arg		
15 20		
Gln Ala Ala Leu Gln Ile Gly Tyr Gln His		
25 30		
His Ala Ile Val Glu Leu Ser Gly Ala Ser		
35 40		
His Pro Ala Ser Ile Asp Val Val Ser Leu		
45 50		
His Tyr Pro Ser Glu Trp Val Glu His Tyr		
55 60		
Thr Arg Asn Asp Tyr Phe Ala Ile Asp Pro		
65 70		
Val His Arg Ala Ala Phe Arg Tyr Ser Thr		
75 80		
Pro Phe Ser Trp Asn Asp Val Ala Thr Ala		
85 90		
Asn Leu Arg Glu Arg His Leu Leu Met Glu		
95 100		
Ala Glu Asp Ala Gly Leu Asp Asn Gly Ile		
105 110		
Ser Ile Pro Leu His Gln Pro Leu Gly Arg		
115 120		
Val Leu Leu Val Ser Leu Ser Gly Thr Ala		
125 130		
Pro Thr His Asp Ala Asp Ala Lys Trp Arg		
135 140		
Asn Ala Tyr Leu Leu Gly Met Gln Phe Asn		
145 150		
Leu Gln Phe Gln Ser Met Arg Thr Cys Arg		
155 160		
Pro Ile Pro Pro Ser Val His Leu Thr Asp		
165 170		
Arg Glu Gln Met Cys Leu Thr Trp Val Ala		
175 180		
Arg Gly Lys Ser Ser Trp Val Ile Ala Asn		
185 190		
Met Leu Asp Ile Ser Lys Tyr Thr Val Asp		
195 200		
Phe His Ile Glu Asn Ala Met Glu Lys Leu		
205 210		
Asn Thr Arg Ser Arg Thr Phe Ala Ala Val		

	215	220
Lys Ala Thr Arg Gln Glu Leu Ile Phe Pro		
	225	230
<210> 27		
<211> 294		
<212> PRT		
<213> <i>B. pseudomallei</i> DD503 bpmR4		
<400> 27		
Met Ala Arg Thr Arg Arg Gly Ala Ser Glu		
1 5 10		
Ser Arg Arg Ser Ala Arg Ala Gly Ala Ile		
15 20		
Ala Ala Arg Pro Ala Phe Arg Ala Arg Arg		
25 30		
Thr Gly Gly Ser Pro Arg Gly Arg Ala Gln		
35 40		
Pro Leu Ala Arg Gly Gly Gly Ala Arg Ser		
45 50		
Asp Gln Pro Ala Arg Arg Cys Asp Asp Asp		
55 60		
Arg Leu Arg Ala Val Val Arg Ala Tyr Leu		
65 70		
Ala Cys Gly Val Arg Gln Met Lys His Asp		
75 80		
Arg Ala Leu Arg Asp Ala Glu Asn Leu Arg		
85 90		
Asp Phe Pro Arg Arg Leu Ala Ala Pro Arg		
95 100		
Pro Leu Gln Arg Phe Ala Leu Ala Arg Gly		
105 110		
Gln Ile Ala Arg Ala Leu Pro Ser Glu Pro		
115 120		
Ala Ile Glu Gln Leu Val His Arg Arg Val		
125 130		
His Glu Ala Arg Glu Gln Leu Arg Gln Ala		
135 140		
Gln Gln Pro Gln Tyr Val Ala Arg Val Val		
145 150		
Leu Glu Arg Ile Val Gly Arg His Ala Glu		
155 160		
His Ala Asp Arg Ala Ala Ala Ile Val Asn		
165 170		
Gly Ala Thr Glu Pro Val Asp Glu Ala Val		
175 180		
Arg Phe Arg Leu Val Ala His Glu Leu Arg		
185 190		
Ala Ala Gly Arg Ile Glu Val Val Val Pro		
195 200		
Asp Glu Arg His Gly Pro Ala Pro Ala Met		
205 210		
Leu Asn Asp Gly Ile Asp Arg Gln Val Val		
215 220		
Gly Gly Val Val Ala Gln Pro Pro Leu Gly		

	225	230
Arg Lys Ser Val	Glu His Ala Ala Ala	Arg
	235	240
Arg Arg Ala Gly	Asp Leu Met Pro Val	Arg
	245	250
Glu Ile Leu Glu	Ala Gln Leu Ala Asn	Val
	255	260
Ile Arg Arg Leu	Leu Lys Glu Ala Leu	Leu
	265	270
Asn Ser Arg Val	Gln Asn Phe Val Lys	Arg
	275	280
Thr Asn Gly Gln	Ala Phe Glu His Arg	Thr
	285	290
Ala Gln Leu Lys		

<210> 28
 <211> 241
 <212> PRT
 <213> *B. pseudomallei* DD503 bpmR5
 <400> 28

Met Arg Ala Ala Met	Gly Asn Trp Ala Glu	
1	5	10
Asp Leu Leu Ala Gly	Leu Asp Ser Ala Arg	
	15	20
Ser Glu Glu Glu Ala	Phe Arg Ser Val Glu	
	25	30
Thr Ala Ala Ala Ala	Leu Asp Phe Glu Tyr	
	35	40
Cys Ala Tyr Gly Leu	Arg Val Pro Trp Pro	
	45	50
Leu Ser Arg Pro Arg	Ile Glu Thr Arg Ser	
	55	60
Asn Phe Pro Glu Gln	Trp Lys Arg Arg Tyr	
	65	70
Val Glu Ala Gly Phe	Leu Asp Val Asp Pro	
	75	80
Ile Leu Ala His Gly	Arg Arg Ser Gln Gln	
	85	90
Pro Val Val Leu Ala	Glu Thr Leu Phe Ala	
	95	100
Ser Ala His Gln Met	Trp Val Glu Ala Gln	
	105	110
Ser Phe Gly Leu Arg	Phe Gly Trp Ala Gln	
	115	120
Ser Ser Phe Asp Ala	Tyr Gly Gly Met Gly	
	125	130
Met Leu Ala Leu Val	Arg Ser Cys Glu Pro	
	135	140
Val Thr Ala Ala Glu	Leu Asp Ala Lys Glu	
	145	150
Tyr Arg Met Arg Trp	Leu Val Arg Thr Ala	
	155	160
His Ala Ala Leu Gly	Arg Met Met Leu Pro	

	165	170
Lys Leu Met Ala Asp Pro Glu Arg Gly Leu		
	175	180
Thr Glu Arg Glu Val Glu Val Leu Lys Trp		
	185	190
Ala Ala Asp Gly Lys Thr Ser Gly Glu Ile		
	195	200
Ser Lys Ile Leu Ala Ile Ser Val Asp Thr		
	205	210
Val Asn Phe His Val Lys Asn Ala Ile Leu		
	215	220
Lys Leu Arg Thr Ala Asn Lys Thr Ala Ala		
	225	230
Val Val Arg Ala Ala Met Leu Gly Leu Leu		
	235	240
Ser		

<210> 29
<211> 22
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